Lev Tarasoff

Work Address:
Department of Physics
University of Toronto
60 St. George St.,
Toronto, Ontario, M5S 1A7
tel: home office: (519) 821-3555
fax: (416) 978-8905
http://www.atmosp.physics.utoronto.ca/people/lev/lev.html

Home Address:
37 Forbes Ave
Guelph, Ont, N1G 1G2
tel: 519-821-3555
email: lev.tarasoff@utoronto.ca

Professional Appointments

University of Toronto, Dept. of Physics, Toronto, Ont. 1999 to present
Research Associate. Glacial system dynamics modelling. My current focus is on the reconstruction of ice-sheet histories of the last glacial cycle using coupled climate, ice-sheet, surface drainage, and geodynamic models objectively calibrated against gravitational observations, relative sea level and lake level data, glacial geology, and other paleo proxies. The reconstructions are then used to further our understanding of the dynamics of the glacial cycle and millennial-scale climate variability during glacial periods. My work continues to involve extensive model design and construction. Research adviser: W. R. Peltier.

University of Georgia, Dept. of Geography, Athens, Ga, 1998-1999
Research Scientist. Continuation of climate dynamics and glaciological research along with teaching responsibilities. Research included continuing refinement of the ice-sheet model and analysis of modelled ice-sheet sensitivity to uncertainties in the ice rheology.

University of Toronto, Dept. of Physics, Toronto, Ont. 1995-1998
Postdoctoral Fellow. Exploration of the dynamics of the ice-age cycle using coupled climate and ice-sheet models in order to elucidate the critical processes and feedbacks responsible for the 100-thousand year glacial cycle. This work involved the development of climate, geodynamic, and 3-dimensional thermo-mechanically coupled ice-sheet computer models. Research adviser: W. R. Peltier.

Teaching

University of Georgia, Dept. of Geography, 1998 and 1999
“Weather and Climate” course GGY 120 with 100 and 200 students per class.

Physics Department, University of Guelph, Ont., 1982-1984
Teaching Assistant, first year physics tutorials.

Education

University of Toronto, Dept. of Physics, Ph.D. 1992
Thesis: Explorations in Quantum Gravity: From One Loop Effective Actions to Two-Dimensional Theories. Thesis explored issues and models relating to quantum gravity. Specific topics included conservation of quantum coherence at a black hole horizon, operator regularization of quantum gravity, and 2-dimensional classical and quantum models of gravity. Ph.D supervisor: R. B. Mann.

Moscow State University, fall/winter 1989-1990
Intensive written and spoken Russian immersion courses. Informal study of large-scale social change.

University of Toronto, Dept. of Physics, M.Sc. 1985

University of Guelph, Department of Physics, B.Sc. (with distinction) 1984

Awards

University of Toronto Fellowship, 1989.

Natural Science and Engineering Research Council Post-Graduate Fellowship, 1984-1989.

University of Toronto MacLaughlin Entrance Award, 1984.

Miscellaneous departmental awards, University of Guelph, 1980-1983.

University of Guelph Entrance Scholarship, 1980.

Other Work Experience

Hillside Farm, Ont., 1984-1995
Owner and operator of farming and on-farm milling operation.

Physics Department, University of Guelph, Ont., 1982
Summer research assistanceship. Computer modelling of 3-body interactions in molecular spectroscopy.

Invited Presentations

2004 May, Dept. of Earth Sciences, University of Waterloo, Waterloo
Ice, water, and a deglacial hiccough: Constraining the deglaciation of North America and some climatic implications

2003 May., 7th Canadian Geoid Workshop, Calgary
New results from a calibrated model with coupled geodynamics and cryodynamics

2001 Nov., Joint CSHD/CIAR special meeting on Earth system evolution, Vancouver
The Late Pleistocene glacial history of Greenland:
New results from a model with coupled geodynamics and cryodynamics

May, Canadian Geophysical Union, Ottawa
Dynamical ice-sheet models and their incorporation into geophysical inverse reconstructions of Wisconsin North American ice sheets

April, LGGE, CNRS, Grenoble, France
The relative sea level constraint on Greenland ice-sheet evolution

1998 March, Laboratoire de Modelisation du Climat et de l'Environement, Saclay, France
The Dynamics of the Ice-Age cycle

March, EISMINT workshop on coupling climate and ice sheet models, Aussois, France
Lessons and issues from ice sheet models coupled to simple climate models

Jan., Dept. of Oceanography, Texas A & M, Texas, USA
Lessons and Questions from coupled ice sheet and climate models

1997 Dec., American Geophysical Union Fall Meeting, San Francisco, USA
A Model of the 100 kyr Ice-Age Cycle

Sept., Dept. of Geography, U. of Georgia, Athens, Georgia, USA
What makes the ice-age clock tick?

Sept., EISMINT Model Intercomparison Workshop, Grindelwald, Switzerland
Thermo-mechanical modelling of the last 100kyr ice-age cycle

Conference Presentations

2005 June, Canadian Quaternary Association (CANQUA), Winnipeg
A calibrated deglacial chronology for North America: an inferred Arctic trigger for the Younger Dryas

2004 May, Joint (Can. and Amer. Geophys. Unions) CGU/AGU assembly, Montreal
A new calibrated deglacial drainage history for North America and evidence for an Arctic trigger for the Younger Dryas

and *A Bayesian Calibrated Deglacial History for the North American Ice Complex*

April, European Geophys. Union (EGU) Assembly, Nice, France
A Bayesian calibration methodology applied to ice-sheet modelling

and *The Northwest Agassiz outlet and it's role in initiating the Younger Dryas*

2003 May, Canadian Geophysical Union, Banff
Bayesian calibration of a model of the deglaciation of the North American ice-sheet complex

April, EGS/EUG/AGU Joint Assembly, Nice, France
Large ensemble analyses of Laurentide ice-sheet evolution

and *High resolution borehole tracer-tracking in a 3-D model of Greenland Ice-Sheet evolution*

2002 June, Int. Glaciol. Society (IGS) meeting on Fast Glacier Flow, Yakutat
The impact of fast-flow processes on the geometry of the Laurentide ice sheet

May, Canadian Geophysical Union, Banff
What does it take to get an dynamical ice-sheet model to match geo/glaciological inferences and RSL constraints?

2001 March, European Geophysical Society, Nice
The relative sea level constraint on Greenland ice-sheet evolution

2000 May, Canadian Geophysical Union, Banff
Ice Sheet Modelling, Geophysical Inversion, And Lithospheric Thickness

June, GEOCAN 2000, Calgary
Dynamics of Pleistocene Ice Age Cycles

1999 March, European Geophysical Society, Den Haag
On Laurentide ice-sheet aspect ratio in Glen flow law based models

1997 May, Canadian Geophysical Union, Banff
Why the 100kyr cycle? (How?)

1996 American Geophysical Union Fall Meeting, San Francisco, USA

International Symposium on Representation of the Cryosphere in Climate and Hydrological Models, Victoria, Canada

Canadian Geophysical Union, Banff, Canada

1995 EISMINT Summer School, Grindelwald, Switzerland

Publications

W. R. Peltier, **L. Tarasov**, G. Vettoretti and L. P. Solheim, Climate Dynamics in Deep Time: Modelling the "Snowball Bifurcation" and Assessing the Plausibility of its Occurrence, in **Multidisciplinary Studies Exploring Extreme Proterozoic Environmental Conditions**, Amer. Geophys. Union, in press.

Lev Tarasov and W.R. Peltier, Arctic freshwater forcing of the Younger Dryas cold reversal, **Nature**, **435**, 662-665, 2005.

Lev Tarasov and W.R. Peltier, A geophysically constrained large ensemble analysis of the deglacial history of the North American ice sheet complex, **Quat. Sci. Rev.**, **23**, 359-388, 2004.

Lev Tarasov and W.R. Peltier, Greenland glacial history, borehole constraints and Eemian extent, **J. Geophys. Res.**, **108**(B3), 2124-2143, 2003.

Lev Tarasov and W.R. Peltier, Greenland glacial history and local geodynamic consequences, **Geophys. J. Int.**, **150**, 198-229, 2002.

L. Tarasov and W.R. Peltier, Laurentide ice sheet form in Glen flow law based models, **Ann. Glaciol.**, **30**, 177-186, 2000.

W.R. Peltier, D.L. Goldsby, D.L. Kohlstedt, and **L. Tarasov**, Ice-age ice sheet rheology: constraints from Last Glacial Maximum form of the Laurentide ice sheet, **Ann. Glaciol.**, **30**, 163-176, 2000.

S.J. Marshall, **L. Tarasov**, G.K.C. Clarke and W.R. Peltier, Glaciology of Ice Age cycles: Physical processes and modelling challenges, **Can. J. Earth Sci.**, **37**, 769-793, 2000.

Payne, A. J. and 10 others, Results from the EISMINT model intercomparison: the effects of thermomechanical coupling, **J. Glaciol.**, **46**, 227-238, 2000.

L. Tarasov and W.R. Peltier, The Impact of Thermo-mechanical Ice sheet Coupling on a Model of the 100 kyr Ice-Age Cycle, **J. Geophys. Res.**, **104**, 9517-9545, 1999.

W.T. Hyde, T.J. Crowley, **L. Tarasov** and W.R. Peltier, The Pangean Ice Age: Studies with a coupled Climate-Ice Sheet Model, **Clim. Dyn.**, **12**, 100-115, 1999.

L. Tarasov and W.R. Peltier, A High-Resolution Model of the 100 kyr Ice-Age Cycle, **Ann. of Glaciol.**, **25**, 58-65, 1997.

L. Tarasov, and W.R. Peltier, Terminating the 100 kyr Ice Age cycle , **J. Geophys. Res.**, **102**, 21665-21693, 1997.

D. Bienzle, J.H. Lumsden, E. Grift, R.M. Jacobs, and **L. Tarasoff**, Comparison of two automated hematology analyzers in domestic animals, **Comp. Haemat. Internat.**, **4**, 162-165, 1994.

R. B. Mann, **L. Tarasoff**, and A. Zelnikov, Brick walls for black holes, **Class. Quant. Grav.**, **9**, 1487-1494, 1992.

R. B. Mann, A. Shiekh, and **L. Tarasoff**, Classical and quantum properties of two-dimensional black holes, **Nucl. Phys.**, **B341**, 134-154, 1990.

R. B. Mann, **L. Tarasoff**, D.G.C McKeon, and T. Steele, Operator regularization and quantum gravity, **Nucl. Phys.**, **B311**, 630-672, 1988.

L. Tarasoff and R. B. Mann, Shifts of Integration Variable in the Light-Cone Gauge, **Modern Phys. Let.**, A1, 525-533, 1986.

Manuscripts under Review

L. Tarasov and W.R. Peltier, A calibrated deglacial drainage chronology for the North American continent: Evidence of an Arctic trigger for the Younger Dryas, *Quat. Sci. Rev.*.

Manuscripts in Preparation

L. Tarasov, R. Neal, and W.R. Peltier, An objectively calibrated model of Laurentide deglaciation.

R. Neal, L. Tarasov, and W.R. Peltier, Bayesian calibration of complex physical models: a case study of a dynamical model of the Wisconsin deglaciation of the North American ice sheets using geophysical constraints.

L. Tarasov, Flavio Justino, G. Vettoretti, and W.R. Peltier, Glacial inception tests with 3D coupled models.

Academic Service

Grant review: NSF

Manuscript review: Can. J. of Earth Sci., Climate Dynamics., Computers & Geosciences, Earth and Plan. Sci. Lett., Geophysical Res. Lett., Geology, Global and Plan. Change, J. of Climate, and Quaternary Sci. Reviews.

Instructional Enhancement

Participation in Teaching and Learning Group Seminar (1998) and individual consultation with the Office of Instructional Support, University of Georgia, Athens, Ga.